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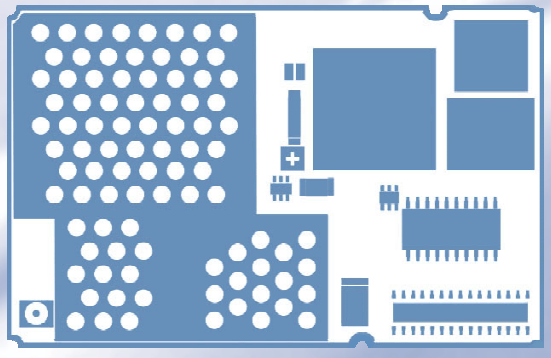

Remote-SAT User's Guide

Siemens Cellular Engines

Version: 07
DocID: Remote_SAT_UG_v07

Remote-SAT User's Guide

Document Name:	**Remote-SAT User's Guide**
Version:	**07**
Date:	**May 24, 2004**
DocId:	**Remote_SAT_UG_v07**
Status:	**Confidential / Released**

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Contents

0 Document history 5

1 AT commands for Remote-SAT 6

1.1 Introduction 6
1.1.1 Supported products and related documents 7
1.1.2 Terms and abbreviations 8
1.1.3 SAT context diagram 9
1.1.4 Usage of Remote-SAT 10
1.1.5 Command type values 10
1.1.6 Parameter types 12
1.1.7 States of Remote SAT 12
1.1.7.1 Remote-SAT state transition diagram 13
1.1.7.2 Remote-SAT state transition table 14
1.1.8 Examples for using Remote-SAT 16
1.1.9 Using SMS related AT commands 18
1.1.10 Sequence scenarios 19
1.1.10.1 Initialization sequence 19
1.1.10.2 Proactive command sequence 20
1.1.10.3 Envelope command sequence (Menu selection) 21
1.1.10.4 Envelope command sequence (Call / MO / SMS Control) 22
1.1.10.5 Event download sequence 23

1.2 AT^SSTA Remote-SAT Activation 24

1.3 ^SSTN Remote-SAT Notification 26

1.4 AT^SSTGI Remote-SAT Get Information 28
1.4.1 AT^SSTGI Remote-SAT Get Information – Generic Format 28
1.4.2 AT^SSTGI Remote-SAT Get Information – Refresh (1) 29
1.4.3 AT^SSTGI Remote-SAT Get Information – Set Up Event List (5) 30
1.4.4 AT^SSTGI Remote-SAT Get Information – Set up Call (16) 31
1.4.5 AT^SSTGI Remote-SAT Get Information – Send SS (17) 33
1.4.6 AT^SSTGI Remote-SAT Get Information – Send USSD (18) 34
1.4.7 AT^SSTGI Remote-SAT Get Information – Send Short Message (19) 35
1.4.8 AT^SSTGI Remote-SAT Get Information – Send DTMF (20) 36
1.4.9 AT^SSTGI Remote-SAT Get Information – Launch Browser (21) 37
1.4.10 AT^SSTGI Remote-SAT Get Information – Play Tone (32) 39
1.4.11 AT^SSTGI Remote-SAT Get Information – Display Text (33) 40
1.4.12 AT^SSTGI Remote-SAT Get Information – Get Inkey (34) 41
1.4.13 AT^SSTGI Remote-SAT Get Information – Get Input (35) 42
1.4.14 AT^SSTGI Remote-SAT Get Information – Select Item (36) 43
1.4.15 AT^SSTGI Remote-SAT Get Information – Set up Menu (37) 45
1.4.16 AT^SSTGI Remote-SAT Get Information – Set up Idle Mode Text (40) 46
1.4.17 AT^SSTGI Remote-SAT Get Information – Get Icon Data (250) 47

1.5 AT^SSTR Remote-SAT Response – Generic Format 49
1.5.1 Remote-SAT Command Status 51
1.5.2 Proactive Commands 52
1.5.2.1 AT^SSTR Remote-SAT Response – Refresh (1) 52
1.5.2.2 AT^SSTR Remote-SAT Response – Set Up Event List (5) 52
1.5.2.3 AT^SSTR Remote-SAT Response – Setup Call (16) 53
1.5.2.4 AT^SSTR Remote-SAT Response – Send SS (17) 54
1.5.2.5 AT^SSTR Remote-SAT Response – Send USSD (18) 54
1.5.2.6 AT^SSTR Remote-SAT Response – Send Short Message (19) 55

1.5.2.7 AT^SSTR Remote-SAT Response – Send DTMF (20) 55
1.5.2.8 AT^SSTR Remote-SAT Response – Launch Browser (21) 56
1.5.2.9 AT^SSTR Remote-SAT Response – Play Tone (32) 56
1.5.2.10 AT^SSTR Remote-SAT Response – Display Text (33) 57
1.5.2.11 AT^SSTR Remote-SAT Response – Get Inkey (34) 58
1.5.2.12 AT^SSTR Remote-SAT Response – Get Input (35) 59
1.5.2.13 AT^SSTR Remote-SAT Response – Select Item (36) 60
1.5.2.14 AT^SSTR Remote-SAT Response – Set Up Menu (37) 61
1.5.2.15 AT^SSTR Remote-SAT Response – Set Up Idle Mode Text (40) 61
1.5.3 Event response commands 62
1.5.3.1 AT^SSTR Remote-SAT Event Response – Menu Selection (211) 62
1.5.3.2 AT^SSTR Remote-SAT Event Response – User Activity (232) 62
1.5.3.3 AT^SSTR Remote-SAT Event Response – Idle Screen Available (233) 63
1.5.3.4 AT^SSTR Remote-SAT Event Response – Language Selection (235) 63
1.5.3.5 AT^SSTR Remote-SAT Event Response – Browser Termination (236) 63
1.5.3.6 AT^SSTR Remote-SAT Event Response – Terminate Command (254) 64

2 Appendix 65

2.1 Appendix A – SAT Profile 65
2.2 Appendix B - UCS2 Character Set Options 68
2.3 Appendix C – Language Codes 70

0 Document history

This chapter reports modifications and improvements over previous versions of the document.

Preceding document: “Remote-Sat User’s Guide” Version 06a
New document: “Remote SAT User’s Guide” **Version 07**

Chapter	Page	What is new
1.1.1	7	Updated product list
1.1.7.2	14	Modified table, Remote SAT commands are not more PIN protected.
1.1.10.1	19	New description of initialization sequence: SAT releated AT commands can be issued in RESET state
1.3	26	More detailed description of Remote-SAT notification

Preceding document: “Remote-Sat User’s Guide” Version 06
New document: “Remote SAT User’s Guide” Version 06a

Chapter	Page	What is new
1.4.4	31	More detailed description of parameters
1.4.11	40	Added note regarding MMI, more detailed description of parameter

Preceding documents:
“Remote-SAT User’s Guide" Version AC35_sat_01_v04.00
“Remote-SAT User’s Guide” Version MC35_sat_01_v05.00
New document:
“Remote-Sat User’s Guide” Version 06

Chapter	Page	What is new
1.1.1	7	Added new products: TC35i, MC35i, TC45, MC35i Terminal, TC35i Terminal

1 AT commands for Remote-SAT

This document presents the specification for AT commands and responses required for the SIM Application Toolkit (SAT) implementation in your Siemens cellular engine.

1.1 Introduction

SIM Application Toolkit (SAT) is a technology that lets the SIM card execute a great variety of additional applications. Conventionally, SIM cards are intended to store user specific data, such as phonebooks, secure user identification codes and messages, but they can also hold a lot of value-added mobile applications.

The SAT functionality integrated in your GSM engine allows to execute network specific applications implemented on the SIM card. Typical examples are online banking and information services.

The commands exchanged between SAT and the SIM application fall into two categories:
- Proactive commands – sent from the SIM application to the module's SAT, e.g. DISPLAY TEXT.
- Envelope commands – sent from the module's SAT to the SIM application, e.g. MENU SELECTION.

The SAT implementation supports SAT class 3, GSM 11.14 Release 98, letter class "c".
GSM 11.14 describes proactive and envelope commands in detail.

Note:
The part on PC or PDA side which handles the Remote-SAT AT command interface (referred to as SAT-IF-Handler) is available as an exemplary implementation guidance as source code.

For details, please contact your local Siemens dealer.

1.1.1 Supported products and related documents

This document is intended for the following products:

- AC45
- MC35i
- MC35i Terminal
- MC39i
- MC5x
- TC35i
- TC35i Terminal
- XT55

Related documents
[1] AT Command Set supplied with your wireless module
[2] Hardware Interface Description supplied with your wireless module
[3] Release Notes supplied with your wireless module

Prior to using your GSM engine, be sure to carefully read and understand the latest product information provided in the Release Notes.

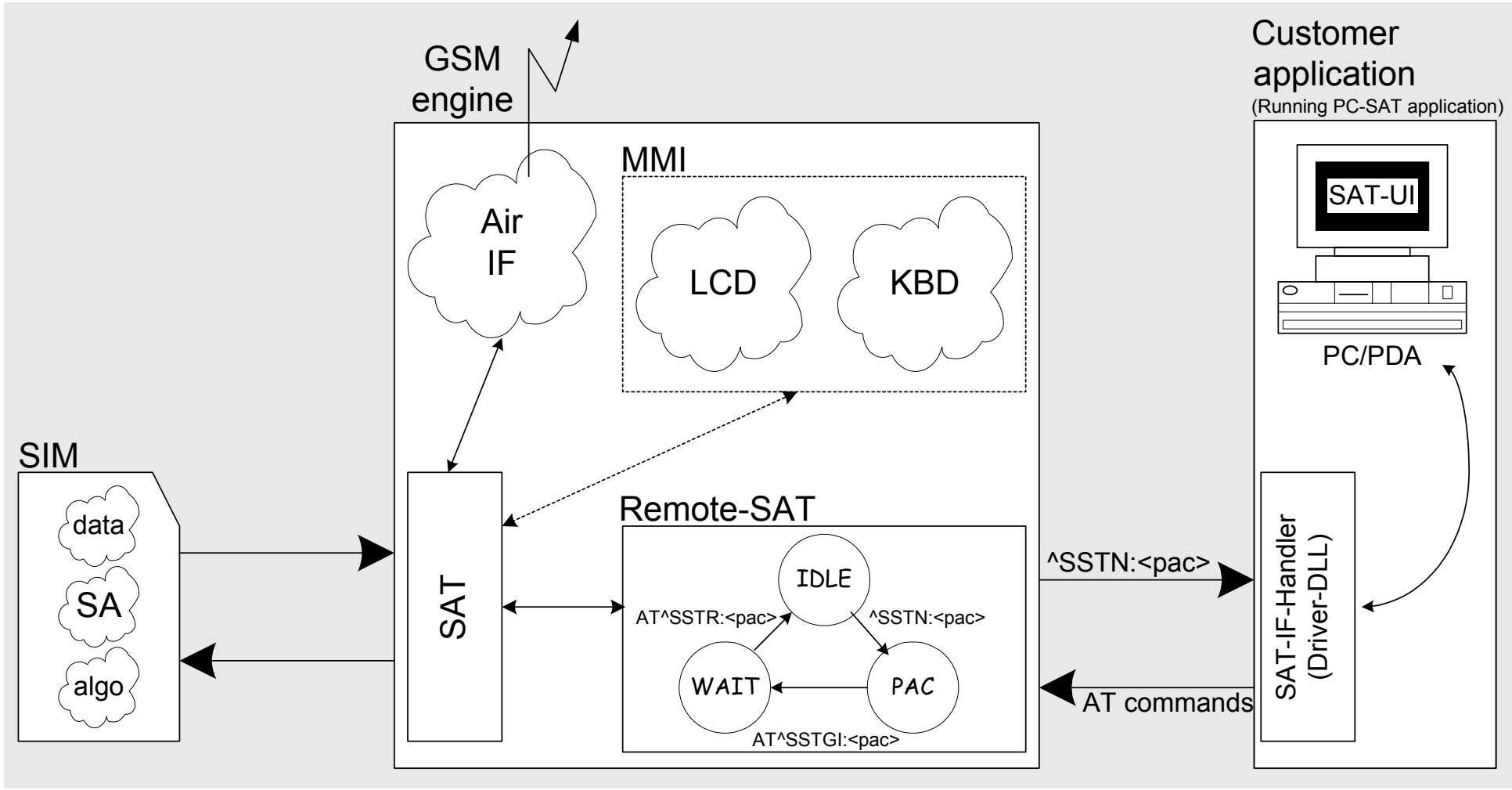
To visit the Siemens Website you can use the following link:

http://www.siemens.com/wm

1.1.2 Terms and abbreviations

Abbreviation	Description
CLUT	Colour look-up Table
DTMF	Dual Tone Multiple Frequency
ETSI	European Telecommunications Standards Institute
GPRS	General Packet Radio Service
GSM	Global Standard of Mobile Communication
ME	Mobile Equipment
MMI	Man-Machine-Interface
MT	Mobile Terminated
RFC	Request for Comments
RFU	Reserved for future use
RSAT	Remote SAT
SIM	Subscriber Identification Module
SMS	Short Message Service
SS	Supplementary Services
TA	Terminal Application
UI	User Interface
USSD	Unstructured Supplementary Service Data

1.1.3 SAT context diagram



1.1.4 Usage of Remote-SAT

Remote-SAT (RSAT) is designed as an AT interface which establishes the link between the SIM application running on the SIM card and the customer application (PDA, laptop etc.). The purpose of RSAT is to allow the customer application to issue AT commands to the SAT interface and to display all SAT activities on the user interface of the customer application. To take advantage of Remote-SAT it must be explicitly started using the AT^SSTA command.

If no customer application is involved there is no need to communicate through the AT interface, and Remote-SAT can be ignored. In this case, all commands and responses may be exchanged directly between the module's SAT interface and the GSM network.

Both scenarios – whether or not Remote-SAT is activated – are illustrated in the context diagram in Chapter 1.1.3.

As a cellular module does not have an MMI, Remote-SAT differs from a phone implementation of SAT. It uses a special set of AT Commands to pass data, e.g. a list of menu items, to the TA and to receive responses, e.g. a selected menu item.

The TA, being the customer application, is required to implement a state machine that controls the module's SAT. It monitors the states of SAT and, if required, sends appropriate AT commands, depending upon user's input. As an example of a proven implementation approach, the SIEMENS PC-MMI tool is available on request. To obtain further information please contact your local Siemens dealer.

The implementation of the Remote-Sat AT commands is not necessary if the customer application does not offer the SIM Application Toolkit to the end user. Therefore the state machine and the use of Remote-SAT AT commands do not need to be implemented in the TA.

1.1.5 Command type values

The Command Type value (<cmdType>) identifies the type of command or associated response passed between the TA (customer application) and the ME.

<cmdType>) is the parameter that comes first in AT commands, in response to AT^SSTGI (see Chapter 1.4) and AT^SSTR (see Chapter 1.5), and in the ^SSTN unsolicited result code (see Chapter 1.3).

The SAT implementation supports SAT class 3 (GSM 11.14 Release 98, letter class "c"). Therefore, Table 1 summarizes only those command types and parameters which may appear on the user interface (UI) and thus, allow the user to take an action. Command types that are transparent to the user are not listed in the table, although they are supported by Remote-SAT as specified in GSM 11.14.

Table 1 Command type identifiers

Command types supported by Remote-SAT (i.e. UI related)				
<cmdType> value (decimal)	^SSTGI applicable	Used as Next Action Indicator	^SSTR required	**Command Name**
Proactive commands (TA ← ME ← SIM)				
				Follows GSM 11.14 (version 8.5.0 2000-12) Section 13.4
1	X		X	REFRESH
5	X		X	SET UP EVENT LIST
16	X	X	X	SET UP CALL
17	X	X	X	SEND SS
18	X	X	X	SEND USSD
19	X	X	X	SEND SHORT MESSAGE
20	X		X	SEND DTMF
21	X		X	LAUNCH BROWSER
32	X	X	X	PLAY TONE
33	X	X	X	DISPLAY TEXT
34	X	X	X	GET INKEY
35	X	X	X	GET INPUT
36	X	X	X	SELECT ITEM
37	X	X	X	SET UP MENU
40	X	X	X	SET UP IDLE MODE TEXT
Termination of proactive commands (URCs, TA ← ME ← SIM)				
101				Terminate REFRESH
105				Terminate SET UP EVENT LIST
116				Terminate SET UP CALL
117				Terminate SEND SS
118				Terminate SEND USSD
119				Terminate SEND SHORT MESSAGE
120				Terminate SEND DTMF
132				Terminate PLAY TONE
133				Terminate DISPLAY TEXT
134				Terminate GET INKEY
135				Terminate GET INPUT
136				Terminate SELECT ITEM
137				Terminate SET UP MENU
140				Terminate SET UP IDLE MODE TEXT
Event commands (TA → ME → SIM)				
211			X	User Menu Item Selection
232			X	User activity
233			X	Idle screen available
235			X	Language selection
236			X	Browser Termination
Additional commands (URCs, TA ← ME ← SIM)				
254				Notification: SIM Application returns to main menu
255				Notification: REFRESH – SIM RESET

Note:
Use of icons is not supported. All icon related actions will respond with <iconId> = 0 (no icon available).

1.1.6 Parameter types

Strings are passed as UCS2 characters, but using the GSM alphabet is also possible. It should be mentioned, that the use of the GSM alphabet is not recommended since a SIM can contain text which might be not displayable, e.g. Greek characters.
To select the type of alphabet, use the AT^SSTA command. The type is determined both for inputs and outputs.
UCS is specified in ISO/IEC 10646. There are 2 and 4 octet versions available, of which only the 2-octet variant is used, known as UCS2.
The 65536 positions in the 2-octet form of UCS are divided into 256 rows, each with 256 cells. The first octet of a character representation gives the row number, the second the cell number. The first row, row 0, contains exactly the same characters as ISO/IEC 8859-1. The first 128 characters are thus the ASCII characters.
The octet representing an ISO/IEC 8859-1 character is easily transformed to the representation in UCS by putting a 0 octet in front of it. UCS includes the same control characters as ISO/IEC 8859 which are located in row 0.
Example:
'<x><x><n><n>'
<x><x> specifies the character set.
<n><n> specifies the character.

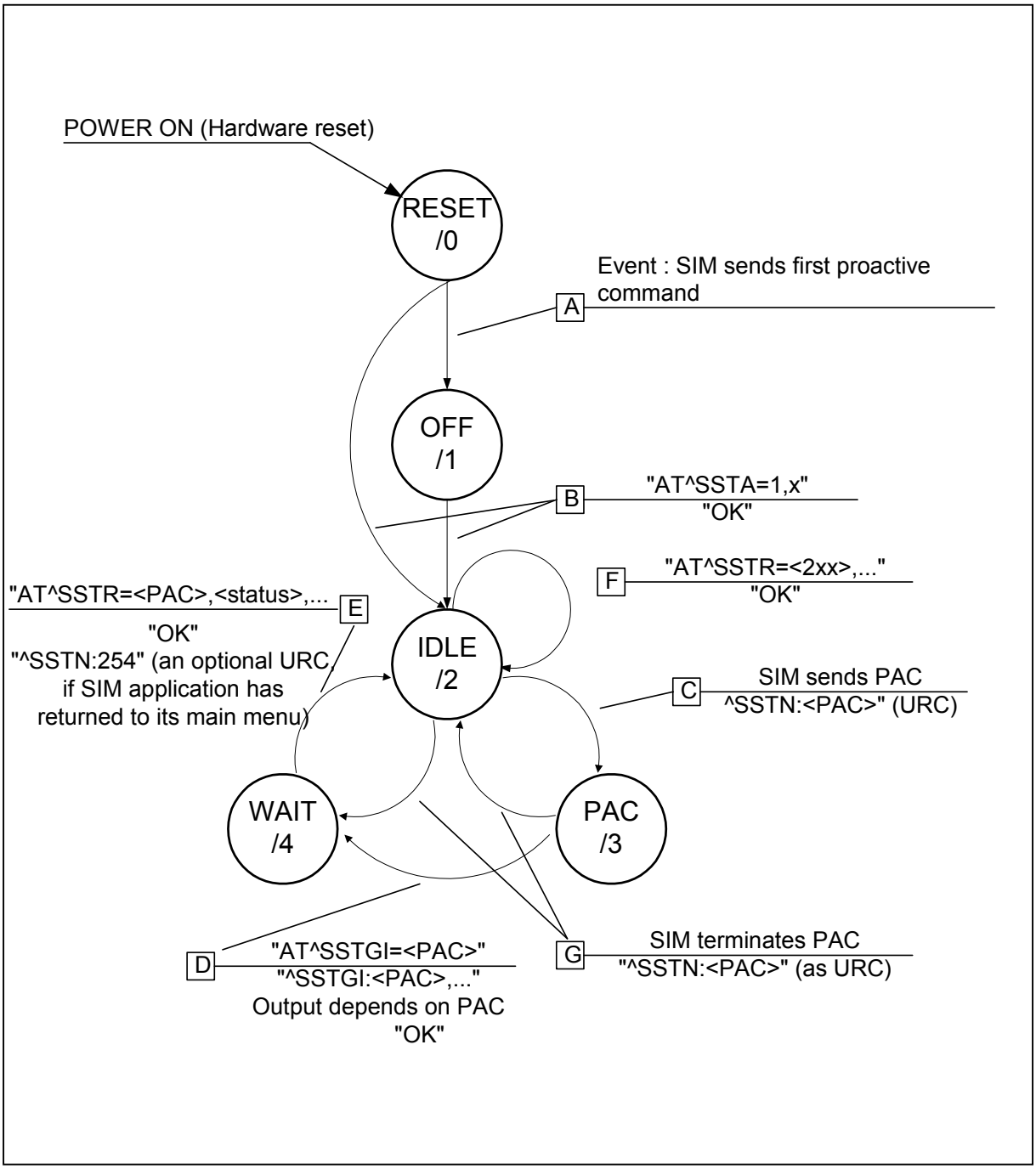
1.1.7 States of Remote SAT

In order to communicate with the SIM Application Toolkit it is necessary to use AT commands which are explained in detail in the following chapters.
In general, the type of AT command which should be issued depends on the current state of the Remote-SAT interface.

The current state of Remote-SAT is determined by

1. the application running on the SIM,
2. the application running on the TA (external controller),
3. the internal actions of the ME (especially SAT and Call Control).

1.1.7.1 Remote-SAT state transition diagram



1.1.7.2 Remote-SAT state transition table

The following table outlines which AT commands can be issued during certain states. However, the test and read AT commands are available at any time. So it is possible to determine the current state of the interface via **AT^SSTA?**.
If a response contains text, the selected alphabet has to be used.

Meaning of options in column “M/O/X”:
M: The TA has to issue the AT command to get Remote-SAT service (mandatory).
O: Issue of the AT command is optional.
X: Issue of the AT command is not allowed at this time and may cause an error message.

State	AT command		
RESET (0)	State after power on the ME. Remote SAT may be activated without SIM or PIN.		
	Action	M/O/X	Description
	^SSTA=1,n	O	
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	X	
OFF (1)	SIM has started its application. SAT service is available, but the Remote-SAT interface needs to be activated by the TA.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Enables SAT service, so that all SAT notifications may be issued as URCs (**^SSTN:<cmdType>**).
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	X	
IDLE (2)	SIM application is running, but no proactive command has been issued.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Use to switch to alphabet type <n>
	^SSTGI=<pac>	X	
	^SSTR=<pac>	X	
	^SSTR=<event>	O	Response to indicate TA, i.e. user activity.
PAC (3)	SIM application has issued a proactive command. This event is signaled to the TA via **^SSTN:<cmdType>**.		
	Action	M/O/X	Description
	^SSTA=1,n	O	Use to switch to alphabet type <n>
	^SSTGI=<pac>	M	Get information related to an issued notification **^SSTN:<cmdType>**. This is requested before a response can be issued via **^SSTR=<pac>**.
	^SSTR=<pac>	X	
	^SSTR=<event>	X	

<table>
<tr><th>State</th><th colspan="3">AT command</th></tr>
<tr><td rowspan="5">WAIT
(4)</td><td colspan="3">SIM application is waiting for the response to the ongoing proactive command.</td></tr>
<tr><td>Action</td><td>M/O/X</td><td>Description</td></tr>
<tr><td>^SSTA=1,n</td><td>O</td><td>Use to switch to alphabet type <n></td></tr>
<tr><td>^SSTGI=<pac></td><td>X</td><td></td></tr>
<tr><td>^SSTR=<pac></td><td>M</td><td>Issue terminal response related to the ongoing proactive command.</td></tr>
<tr><td></td><td>^SSTR=<event></td><td>X</td><td></td></tr>
</table>

*) To limit the time Remote-SAT is kept in the states PAC or WAIT any ongoing (but unanswered) proactive command will be aborted automatically after 10 minutes. In this case, the terminal response is either “ME currently unable to process command”, or if applicable, “No response from user”. In addition a URC “Terminate Proactive Command” will be sent to the external application.

1.1.8 Examples for using Remote-SAT

To give you an idea of how to start and use Remote-SAT, you may follow the steps described below:

```
// Start after switch on the module
at
OK

// Switch on verbose error messages
at+cmee=2
OK

// Enter the PIN code (if necessary due to SIM configuration)
at+cpin=1234
OK

// To query if a SIM application is available and has already started
at^ssta?
^SSTA: 1,1,1,"7FFFFFFF7F0100DF1F"
OK

// OK, First ´1´ indicates that SIM application has started but interface is still in OFF state.
// Tell the module that we are interested in SAT, i.e. switch to IDLE state.
at^ssta=1,0
OK

// Receiving the first proactive command
^SSTN:37

// Requesting parameter details
at^sstgi=37

// These are the details:
^SSTGI: 37,0,3,"SAT Special Menu",0,1,1,0
^SSTGI: 37,1,"News",0,0
^SSTGI: 37,2,"EMail",0,0
^SSTGI: 37,3,"Banking",0,0

OK

// To query the status of the proactive command
at^sstr=37,0

OK

// SAT indicates that the proactive session has ended and enters its main menu (which should then be
opened on the screen by an MMI):
^SSTN:254

// Selecting item number 1 of the menu sent before:
at^sstr=211,0,1

OK
```

// Receiving the next proactive command:
```
^SSTN:36
```

// Requesting more information...
```
at^sstgi=36
```

// ... and get it:
```
^SSTGI: 36,0,12,"Rubriken   >",0,0,1,1,0
^SSTGI: 36,1,"News       >",0,0
^SSTGI: 36,2,"Stock Infos>",0,0
^SSTGI: 36,3,"Aktien D   >",0,0
^SSTGI: 36,4,"Aktien INT >",0,0
^SSTGI: 36,5,"Sports      >",0,0
^SSTGI: 36,6,"1.BL-Clubs >",0,0
^SSTGI: 36,7,"Unterhaltung>",0,0
^SSTGI: 36,8,"Horoskop   >",0,0
^SSTGI: 36,9,"Wetter D   >",0,0
^SSTGI: 36,10,"Wetter INT >",0,0
^SSTGI: 36,11,"Wetter spez>",0,0
^SSTGI: 36,63,"Extras     >",0,0

OK
```

// Remember to acknowledge:
```
at^sstr=36,0,63

OK
```

// And again: Receiving the next proactive command:
```
^SSTN:36
```

// ...

1.1.9 Using SMS related AT commands

The SMS related AT commands are according to the GSM 07.05 specification issued by ETSI.
Usually an SMS is sent to the network provider containing service requests, e.g. to sent the latest news. The provider returns an SMS with the requested information.
The application, running on the TA, sets the parameter specifying the input and output format of the received message, for more detailed information please refer to [1].

Example

1. Set SMS text mode
   AT+CMGF=1

2. Activate the display of a URC on every received SMS
   AT+CNMI=1,1

3. In the case that more detailed header information shown in the text mode parameter, e.g. SMS class, are requested use
   AT+CSDH=1
   (Please refer to ETSI standard GSM 03.38 for details)

4. The following output on every received SMS is generated
   +CMTI: “MT”, 1 where
   - The first parameter “MT” specifies the storage type of the SMS
   - The second parameter contains a unique location number

The example given above explains that the incoming SMS is stored to “MT” with the location number 1. The storage “MT” is the sum of the two physical storages “ME” (Mobile Equipment message storage) and “SM” (SIM message storage). For more detailed information please refer to [1].

5. To read the SMS data use
   AT+CMGR=<location>
   <location> explains the location number associated with the received SMS, e.g. 1 as mentioned in the example above

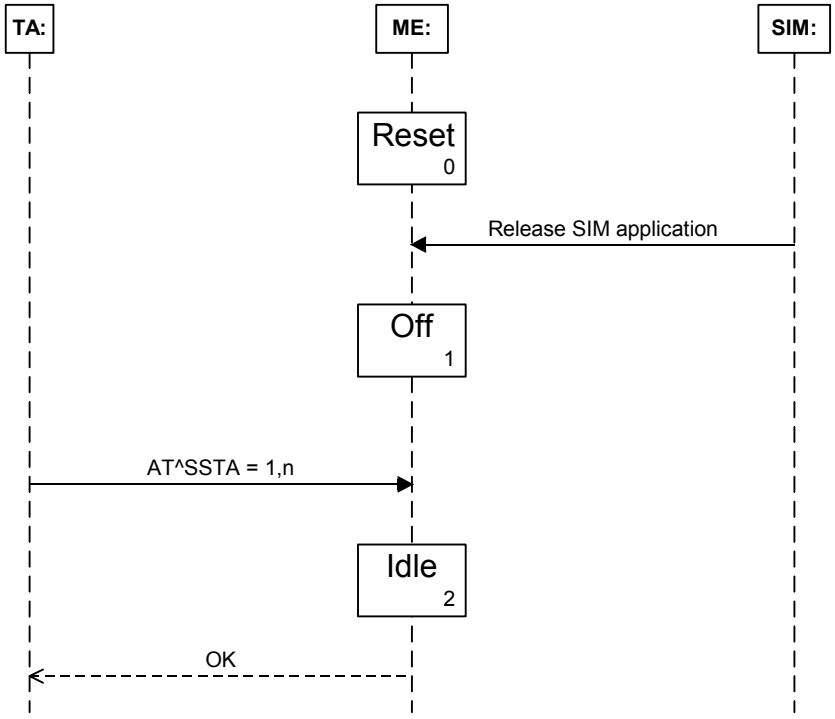
6. To list all stored SMS use
   AT+CMGL=”ALL”

7. To delete a certain SMS after reading use
   AT+CMGD=<location>

1.1.10 Sequence scenarios

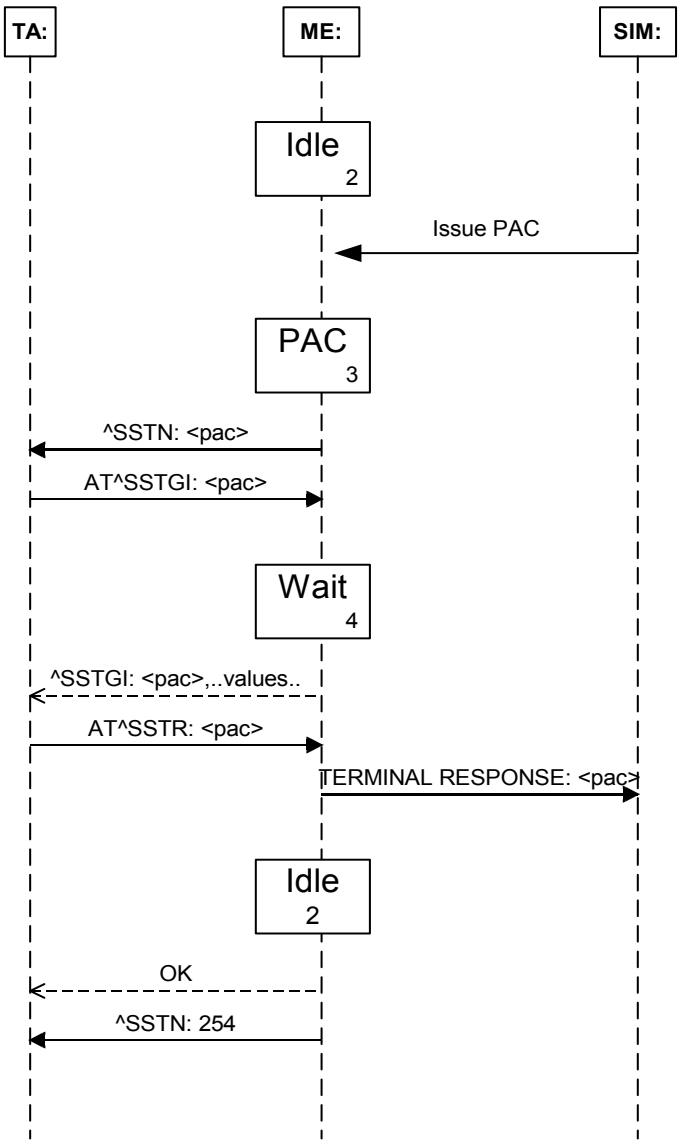
In the following sequence diagrams dashed lines refer to events responding to a formerly issued request.

1.1.10.1 Initialization sequence



SAT starts in RESET sate when the module powers up. If the SIM application starts, SAT returns into OFF state.
Issuing the AT^SSTA command activates SAT and specifies the alphabet to be used. SAT then returns in IDLE state where it is ready for use. In IDLE state SAT can receive input from the TA, such as forms of the AT^SSTR command.

1.1.10.2 Proactive command sequence

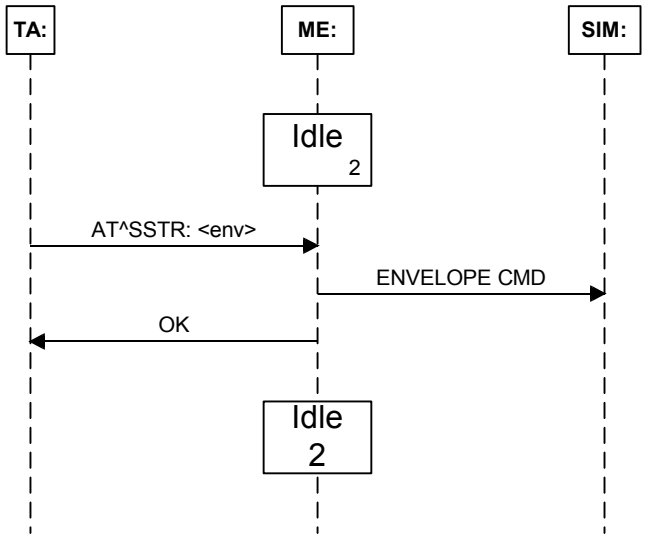


After receiving a proactive command (PAC) from the SIM, SAT enters the PAC state. The TA is informed that a PAC has been issued and is expected to respond with a request for further information. Whilst in the PAC state some forms of the AT^SSTR commands can be issued.

Upon receiving the AT^SSTGI command SAT changes into the WAIT state. Further information about the PAC are sent to the TA and a response is required to trigger a TERMINAL RESPONSE back to the SIM Application.

SAT returns to IDLE state and either another PAC is issued or SAT informs the TA that the proactive session has been terminated.

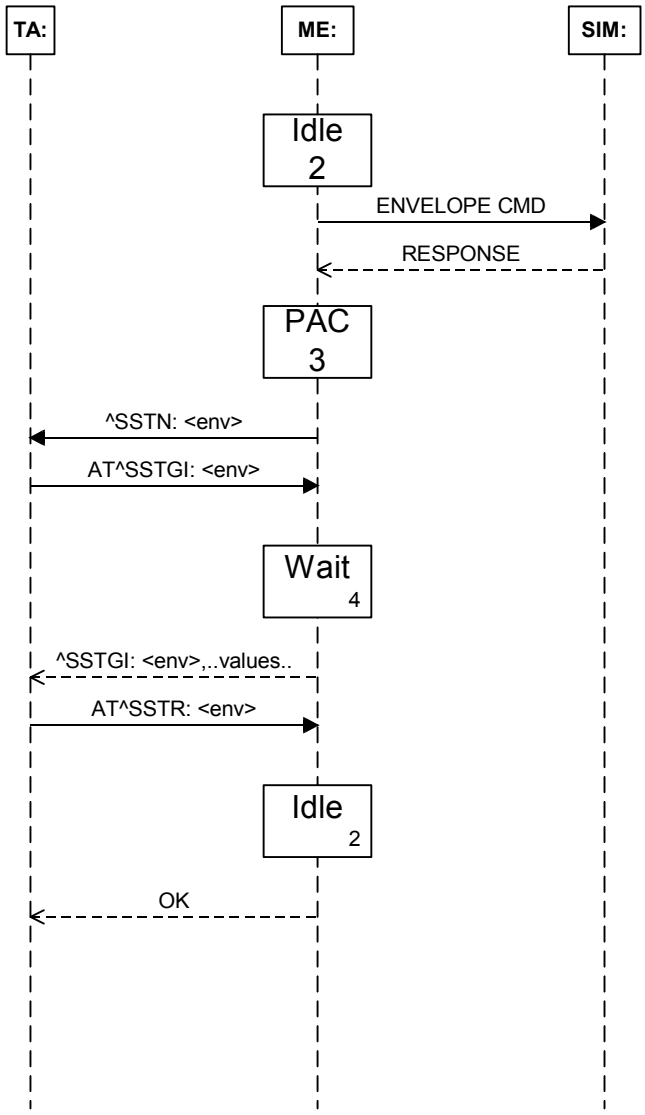
1.1.10.3 Envelope command sequence (Menu selection)



A SIM application will provide SAT with main menu to display, using the PAC SETUP MENU. The envelope command MENU SELECTION allows the TA to select an item from this menu using AT^SSTR.

When this takes place, SAT will issue a response to the user, but will not change the state. The SIM application is then generally expected to issue a PAC.

1.1.10.4 Envelope command sequence (Call / MO / SMS Control)

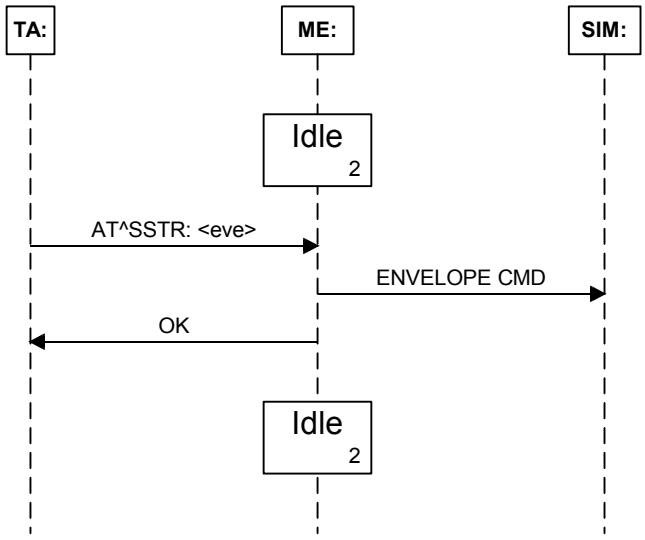


Envelope commands are issued for Call/MO control by SAT if Call control is enabled. Upon receiving the response from the SIM application SAT changes to the PAC state.

In the PAC state the TA is informed of the pending information and expected to issue AT^SSTGI to request further information. This sends SAT into the WAIT state upon which it sends the relevant Call/MO Control information to the TA.

SAT then returns to its IDLE state.

1.1.10.5 Event download sequence



When an event occurs that is in the TA event list, as configured using the PAC SETUP EVENTLIST, SAT is informed using AT^SSTR.
SAT creates the envelope command to send to the SIM application and responds to the TA. During this operation SAT remains in IDLE state.

1.2 AT^SSTA Remote-SAT Activation

Test command AT^SSTA=?	Response ^SSTA:(list of supported <state>s), (list of supported <alphabet>s) See below for parameter description.
Read command AT^SSTA?	The read command can be used to request the current operating status and the used alphabet of the Remote-SAT interface. State handling is described in chapter 1.1.7. Response ^SSTA:<state>,<alphabet>,<allowedInstance>,<SatProfile> <state> Device is in one of the following state: 0 RESET 1 OFF 2 IDLE *) 3 PAC 4 WAIT *) Only this state can be selected directly by the TA, see write command. <allowedInstance> 0 SAT is already used on another instance (logical channel in case of the multiplex protocol). Only test and read commands can be used. 1 SAT may be started on this instance via the write version of this command (see below). <SatProfile> SAT profile according to GSM 11.14, see appendix. The profile informs the SIM application which features are supported by the SIM Application Toolkit implemented by the ME. The profile cannot be changed by the TA.
Write command AT^SSTA=<mode>[,<Alphabet>]	The write command activates the AT command interface to the SIM Application Toolkit in the ME. It must be issued each time the ME is switched on again. However, removing and inserting the SIM does not affect the activation status. SAT commands which are not using the AT interface (non MMI related SAT commands, e.g. PROVIDE LOCAL INFORMATION) may be executed without activating Remote-SAT. Response OK

	Parameter <mode> 1 Activate Remote-SAT (to enter state IDLE) <Alphabet> 0 GSM default alphabet (GSM 03.38) input of a character requests one byte, e.g. “Y”. • On the ME´s output of string parameter (e.g.,”Examples”) character values will range from 32 to 255. • On input to the ME only character values from 32 to 128 are accepted Therefore input characters with GSM alphabet values outside this range have to be entered with an escape character and the hexadecimal value, e.g. “\00 is @”. 1 UCS2 To display the 16 bit value of characters represented in UCS2 alphabet a 4 byte string is required, e.g. “0059” is coding the character “Y”. For details please refer to ISO/IEC 10646.
Reference Siemens	Note Use of GSM default alphabet may cause software flow control (XON/XOFF) problems.

1.3 ^SSTN Remote-SAT Notification

Proactive Commands	Every time the SIM application issues a proactive command via the ME, the TA will receive a notification. This indicates the type of proactive command issued. AT^SSTGI must be used by the TA to request the parameters of the proactive command from the ME. After receiving the ^SSTGI response from the ME, the TA must send **AT^SSTR** to confirm the execution of the proactive command and provide any required user response e.g. selected menu item. Unsolicited result code ^SSTN: <cmdType> Parameters <cmdType> Proactive command ID, see Table 1 Note: Only one proactive command can be ongoing at a time.
Terminate Proactive Command	When the SIM application has issued a proactive command via the ME to the TA, it is possible that this command must be terminated. The ^SSTN Unsolicited Result Code is sent but with a different command type (add terminate offset 100), to indicate the termination of the specified command. The state changes to IDLE. The TA should then avoid sending any further commands related to the terminated proactive command, e.g. AT^SSTGI or AT^SSTR. Unsolicited result code ^SSTN: <cmdTerminateValue> Parameters <cmdTerminateValue> is defined as <cmdType> + terminate offset. The terminate offset equals 100. Terminate proactive command ID, see Table 1
SIM Application returns to main menu	Notification to the TA when the SIM Application has finished a command cycle and enters its main menu again, which was transferred with an URC ^SSTN: 37 (SET UP MENU) at start up. This URC should be used to open this menu on the screen. The TA does not need to respond directly, i.e. AT^SSTR is not required. Unsolicited result code ^SSTN: <254>
SIM Removed / Reset	Notification to the TA if the SIM has been removed or if the proactive command REFRESH – SIM Reset has been issued by the SIM Application, please refer to Chapter 1.4.2. This URC should be used to set the TAs application to its initial state. The SIM application will be started from the beginning, if a SIM is available. A response, e.g. AT^SSTGI or AT^SSTR, from the TA is neither required nor allowed. If the ME is still engaged to access the SIM interface the response might be “+CME ERROR: SIM blocked” or “+CME ERROR: SIM busy” followed by

	AT commands requiring the PIN. The TA should retry to access the SIM interface until the ME responses “OK”. Please note that this process, depending on the SIM, may take more than 10 seconds. Unsolicited result code ^SSTN: 255
Reference Siemens	Note To limit the time Remote-SAT is kept in the states PAC or WAIT any ongoing (but unanswered) proactive command will automatically be aborted after 10 minutes. In this case, the terminal response is either “ME currently unable to process command”, or if applicable, “No response from user”. The URC “Terminate Proactive Command” will be sent to the external application, too

1.4 AT^SSTGI Remote-SAT Get Information

1.4.1 AT^SSTGI Remote-SAT Get Information – Generic Format

Test command AT^SSTGI=?	Response ^SSTGI:(list of supported <state>s), (list of supported <cmdType>s) OK
Read command AT^SSTGI?	Response ^SSTGI: <state>, <cmdType> OK Parameters <state> Remote-SAT interface states (refer to AT^SSTA) <cmdType> Ongoing proactive command (values see Chapter 1.1.5) However, this information is valid for the states PAC and WAIT only.
Write command AT^SSTGI= <cmdType>	There are two situations for using the write command: Regularly the write command is used after receiving an unsolicited result code ^SSTN:<cmdType>. In this case the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. AT^SSTR will also provide any user information e.g. selected menu item. Furthermore it might be necessary to request the information via AT^SSTGI without previously receiving an URC ^SSTN:<cmdType>. This will always be the case if the TA has started or restarted its application (e.g. a MMI) after powering on the ME. To request the information despite the probably missed URCs it is possible to issue AT^SSTGI during states IDLE, PAC and WAIT at any time for the following proactive commands: PAC type 5: Set Up Event List, PAC type 37: Setup Menu, PAC type 40: Setup Idle Mode Test. The command type value is returned to the ME in order to identify which URC ^SSTN:<> is being responded to.
Reference Siemens	Note In the case of using the write command without receiving an URC ^SSTN:<cmdType> it is neither necessary nor possible to acknowledge the ^SSTGI response with AT^SSTR. Any ^SSTGI response will not cause a change of state..

1.4.2 AT^SSTGI Remote-SAT Get Information – Refresh (1)

Write command AT^SSTGI=1	This command is to be used upon receiving an URC ^SSTN:1. The response from the module indicates the type of SIM refresh taking place. Response ^SSTGI: <cmdType>, <commandDetails> <CR> <LF> Parameters <cmdType> 1 – Proactive command ID, see Table 1 <commandDetails> Unsigned Integer, range 0 – 255, used as an enumeration. 0 SIM Initialization and Full File Change Notification; 1 File Change Notification; 2 SIM Initialization and File Change Notification; 3 SIM Initialization; 4 SIM Reset; redirected to URC^SSTN:255. (Please note that the handling of this proactive command is different (no AT^SSTGI and AT^SSTR responses). It is mapped to the URC^SSTN:255. For more detailed information refer to Chapter 1.3.) 5 to 255 = Reserved values. For every return value of <commandDetails> except 4 (SIM reset) the external application shall react as follows: 1. The TA is requested to show a “Please Wait” alert window on its screen until it will receive the RSAT notification ^SSTN:101 (Terminate proactive command REFRESH). 2. The TA completes the proactive command cycle using AT^SSTGI=1 In case the ME is still busy on accessing the SIM interface the ME may respond with +CME ERROR: SIM blocked or +CME ERROR: SIM busy. The TA should retry AT^SSTGI=1 until the ME responds with “OK”. 3. Stop displaying “Please Wait” alert window 4. Issue the related terminal response AT^SSTR=1, <status>
Reference Siemens	Note

1.4.3 AT^SSTGI Remote-SAT Get Information – Set Up Event List (5)

Write command

AT^SSTGI=5

This command is mainly to be used upon receiving an unsolicited result code ^SSTN:5. However, please refer to the note below.

The response informs the TA of the events that it must monitor within itself. If any of these events occur the TA must report them to the ME.

Response

^SSTGI: <cmdType>, <commandDetails>, <eventList> <CR> <LF>

Parameters

<cmdType>		5 – Proactive command ID, see Table 1
<commandDetails>		This byte is RFU.
<eventList>		Unsigned integer, used as bitfield:
bit 1-4		RFU
bit 5	0	User Activity not in Event List
	1	Any user activity (keyboard press) has to be signaled to the ME.
bit 6	0	Idle Screen Available not in Event List
	1	Any idle screen available event has to be signaled to the ME.
bit 7		RFU
bit 8	0	Language Selection not in Event List
	1	Language Selection events have to be signaled to the ME.
bit 9	0	Browser Termination not in Event List
	1	Browser Termination events have to be signaled to the ME
bit 10 – 16		RFU

The event list tells the TA which events have to be reported to the ME via the related commands AT^SSTR=(232, 233, 235, 236).

Reference

Siemens

Note

It is possible to issue AT^SSTGI during states IDLE, PAC and WAIT for this proactive command **without previously** receiving an URC ^SSTN:<cmdType>, see Chapter 1.4.1.

1.4.4 AT^SSTGI Remote-SAT Get Information – Set up Call (16)

Write command

AT^SSTGI=16

This command is to be used upon receiving an unsolicited result code ^SSTN:16.

If the SIM Application attempts to set up a call it uses this response to inform the TA of the call parameters.
The sequence of events is as follows:

1. After the Remote-SAT notification 16 was issued the TA has to request the command parameter using AT^SSTGI=16.
2. If the SIM Application does not supply a confirmation text or icon parameter, the TA gives other information to the user, e.g. the telephone number. In this case refer to step 4.
3. If the SIM Application supplies a non empty confirmation text or icon parameter, the TA uses only these to ask the user whether or not he wishes to set up the call.
4. If the user confirms to set up the call, AT^SSTR=16,0 shall be responded.
5. If the user denies to set up the call, AT^SSTR=16,34 shall be responded.
6. After confirmation phase the TA may present a dialing animation on the screen until a mandatory parameter line
   ^SSTR: 16, <TermQualifier>, <TerminationCauseText>
   is issued.
7. If <TermQualifier> is not equal to 0 the dialing process did not perform successfully.
   If <TerminationCauseText> is not an empty string, this text has to be shown to the user for an appropriate time, e.g. 2 seconds. The text contains information regarding the dial termination cause, e.g. call barring through Call Control by SIM mechanism.
   <TerminationCauseText> is an empty string, the TA shall give an own indication to the user.
8. If <TermQualifier> is equal to 0, the dial process has been successfully finished:
   If <TerminationCauseText> is not an empty string, this text shall be used to inform the user during the call setup.
   If <TerminationCauseText> is an empty string, <callSetupText> and/or <confirmationIconId> shall be used to inform the user during call setup. However, if <callSetupText> contains no data, too, no indication shall be shown.
9. The TA shall give the user an opportunity to end an ongoing call, set up by the Proactive Command. In this case the TA shall issue an ATH command to the ME.

Response

^SSTGI: <cmdType>, <commandDetails>, <confirmationText>, <calledNumber>, <callSetupText>, <confirmationIconQualifier>, <confirmationIconId>, <callSetupIconQualifier>,<callSetupIconId> <CR> <LF>

Parameters

<cmdType>	16 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as an enumeration: 0 Set up call, but only if not currently busy on another call 1 Set up call, but only if not currently busy on another call, with redial

	2 Set up call, putting all other calls (if any) on hold 3 Set up call, putting all other calls (if any) on hold, with redial 4 Set up call, disconnecting all other calls (if any) 5 Set up call, disconnecting all other calls (if any), with redial 6..255 Reserved values <confirmationText> String for user confirmation stage <calledNumber> String containing called number <callSetupText> String for call set up stage <confirmationIconQualifier> Unsigned Integer, range 0 – 255, used as a bit-field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 to 8: = RFU <confirmationIconId> 0-255, 0: No icon <callSetupIconQualifier> Unsigned Integer, range 0 – 255, used as a bit-field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 to 8: = RFU <callSetupIconId> 0-255, 0: No icon
Reference Siemens	Note

1.4.5 AT^SSTGI Remote-SAT Get Information – Send SS (17)

Write command AT^SSTGI=17	This command is to be used upon receiving an unsolicited result code ^SSTN:17. The module is sending a supplementary service request to the network, and is alerting the user of this. Text and an icon identifier can be passed to the TA to display to the user. Text and an icon identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, [<commandDetails>], [<text>], <iconQualifier>, <iconId>, <CR>, <LF> Parameters <cmdType> 17 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <text> String <iconQualifier> Unsigned Integer, range 0 – 255, used as a bit-field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 to 8: = RFU <iconId> 0-255, 0: No icon
Reference Siemens	Note

1.4.6 AT^SSTGI Remote-SAT Get Information – Send USSD (18)

Write command AT^SSTGI=18	This command is to be used upon receiving an unsolicited result code ^SSTN:18. The module is sending an unstructured supplementary service request to the network, and is alerting the user of this. Text and an icon identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, [<commandDetails>], [<text>], <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 18 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <text> String <iconQualifier> Unsigned integer, range 0 – 255, used as a bit field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2-8: = RFU <iconId> 0-255, 0: No icon
Reference Siemens	Note

1.4.7 AT^SSTGI Remote-SAT Get Information – Send Short Message (19)

Write command AT^SSTGI=19	This command is to be used upon receiving an unsolicited result code ^SSTN:19. The SIM Application is sending a Short Message and the TA is informed of this. The user can be passed a string containing information to display. Response ^SSTGI: <cmdType>, <commandDetails>, <textInfo>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 19 – Proactive command ID, see Table 1 <commandDetails> This byte is RFU. <textInfo> String to provide the user with information. If the string is provided by the SIM and is not a null data object (empty string), the TA shall use it to inform the user. This is also an indication that the TA should not give any other information to the user on the fact that the ME is sending a short message. If the string is a null data object (i.e. an empty string), the TA may give own information to the user concerning what is happening (e.g. “Please Wait”). <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2-8: = RFU <iconId> Unsigned Integer, range 0-255, 0: No icon 1: An icon is provided by the SIM, the icon indicated in the command may be used by the ME to inform the user, in addition to, or instead of the alpha identifier, as indicated with the icon qualifier.
Reference Siemens	Note

1.4.8 AT^SSTGI Remote-SAT Get Information – Send DTMF (20)

Write command AT^SSTGI=20	This command is to be used upon receiving an unsolicited result code ^SSTN:20. The SIM Application is sending DTMF tones to the network, and can provide the TA with some information about this. Text and an Icon Identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 20 – Proactive command ID see Table 1 <commandDetails> This byte is RFU. <text> String to provide user with information. <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2-8: = RFU <iconId> 0-255, 0: No icon
Reference Siemens	Note

1.4.9 AT^SSTGI Remote-SAT Get Information – Launch Browser (21)

Write command

AT^SSTGI=21

This command is to be used upon receiving an unsolicited result code ^SSTN:21.

If the SIM Application attempts to start an Internet Browser, it uses this response to inform the TA of the launch parameters.

The sequence of events is as follows:

1. After the Remote-SAT notification 21 was issued the TA has to ask for the command parameters via AT^SSTGI=21.
2. When receiving a LAUNCH BROWSER command the TA should ask for user confirmation. An alpha identifier / icon identifier shall be used if available.
3. If the user does not confirm to start the browser, AT^SSTR=21,0 shall be responded.
4. If the user denies to start the browser, AT^SSTR=21,34 shall be responded.
5. The SIM Application will end the proactive session.
6. On response AT^SSTR=21,0 the browser session may still be active while a next proactive command is issued. Therefore the end of the browser session shall be reported to the ME via browser termination event command asynchronously if determined by the event list.
   For details please refer to Chapter 1.5.3.5.

Response

^SSTGI: <cmdType>, <commandDetails>, <confirmationText>, <confirmationIconQualifier>, <confirmationIconId>, <BrowserIdentity>, <URL>, <BearerList>, <FileRefList>, <GatewayIdentity> <CR> <LF>

Parameters

<cmdType>	21 – Proactive command ID, see Table 1	
<commandDetails>	Unsigned Integer, range 0 – 255	
00	Launch browser, if not already launched	
01	Not used	
02	Use the existing browser (the browser shall not use the active existing secured session)	
03	Close the existing browser session and launch new browser session	
04	Not used	
05 to FF	RFU	
<confirmationText>	String for user confirmation stage	
<confirmationIconQualifier>	Unsigned Integer, range 0 – 255, used as a bit field. Determined value only if associated icon ID is not 0 (an icon exists).	
bit 1:	0	Icon is self explanatory and replaces text
	1	Icon is not self-explanatory and shall be displayed with the text.
bits 2-8:	RFU	
<confirmationIconId>	Unsigned Integer, range 0-255, 0: no icon	

	<BrowserIdentity> 0	Unsigned Integer, range 0-255, browser to be used Default Browser shall be used. Other values are RFU.
	<URL>	String containing URL to be used by the TA to request content. The way the ME requests content using the URL is out of the scope of the present document. This is specified in RFC 1738 Annex K for example.
	<BearerList>	String containing bearer list Not supported, empty string (“ ”).
	<FileRefList>	String containing list of provisioning file references. Not supported, empty string (“ ”).
	<GatewayIdentity>	String containing the Gateway/Proxy Identity which gives to the mobile the name/identity of the Gateway/Proxy to be used for connecting to the URL. This Gateway/Proxy identity is required when the bearer data object is present. Not supported, empty string (“ ”).
Reference Siemens	Note	

1.4.10 AT^SSTGI Remote-SAT Get Information – Play Tone (32)

Write command AT^SSTGI=32	This command is to be used upon receiving an unsolicited result code ^SSTN:32. The ME has been instructed to generate an audible tone, and may pass to the TA some information to support this. Text and an icon identifier are passed to the TA for display to the user. Response ^SSTGI: <cmdType>, <commandDetails>, <infoText>>, <tone>, <durationUnit>, <duration>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 32 – Proactive command ID, see Table 1. <commandDetails> This byte is RFU. <infoText> String to accompany tone <tone> Tone generated by the ME Standard supervisory tones: 01 Dial tone 02 Called subscriber busy 03 Congestion 04 Radio path acknowledge 05 Radio path not available / Call dropped 06 Error / Special information 07 Call waiting tone 08 Ringing tone ME proprietary tones: 10 General beep 11 Positive acknowledgement tone 12 Negative acknowledgement or error tone <durationUnit> 0 Minutes 1 Seconds 2 Tenths of Seconds <duration> Duration of tone, expressed in units (1-255) <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 Icon is self explanatory and replaces text 1 Icon is not self-explanatory and shall be displayed with the text. Determined value only if associated icon ID is not 0 (an icon exists). bits 2-8: RFU <iconId> 0-255, 0: no icon
Reference Siemens	Note

1.4.11 AT^SSTGI Remote-SAT Get Information – Display Text (33)

Write command AT^SSTGI=33	This command is to be used upon receiving an unsolicited result code ^SSTN:33. The TA is being passed a message to display to the user, which can have different display characteristics. Text and an icon identifier can be passed to the TA to be displayed. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <immediateResponse>, <iconQualifier>, <iconId> <CR> <LF> Parameters <cmdType> 33 – Proactive command ID, see Table 1 <commandDetails> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = Normal priority (see note) 1 = High priority (see note) bits 2 to 7: = RFU bit 8: 0 = Clear message after a delay 1 = Wait for user to clear message <text> String to be displayed (up to 240 bytes) <immediateResponse> Indicates when to send TERMINAL RESPONSE 0 = Send TERMINAL RESPONSE when text clears from screen 1 = TERMINAL RESPONSE sent immediately <iconQualifier> Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = icon is self explanatory and replaces text 1 = icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 – 8: RFU <iconId> 0-255, 0: No icon
Reference Siemens	Note The MMI shall reject normal priority text commands if the screen is currently used for more than its normal standby display, e.g. the MMI is in sub-menu. If the command is rejected, the MMI sends the TERMINAL RESPONSE message to the SIM (ME currently unable to process command – screen busy). High priority text shall be displayed on the screen immediately, except if a priority conflict of the alerting events occurs, e.g. incoming call or a URC if the battery needs to be charged, see GSM 11.14, Chapter “Proactive SIM commands and procedures, Display Text”.

1.4.12 AT^SSTGI Remote-SAT Get Information – Get Inkey (34)

Write command AT^SSTGI=34	This command is to be used upon receiving an unsolicited result code ^SSTN:34. The TA is asked to prompt the user for an input, which is a single character. Help can be requested by the user, if available. Text and an icon identifier can be passed to the TA to display to the user. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId> <CR> <LF>
	Parameters
	<cmdType>: 34 – Proactive command ID, see Table 1

	<commandDetails>: Unsigned Integer, range 0 – 255, used as a bit field. For detailed information refer to AT^SSTR Remote-SAT Response – Get Inkey (34)
	bit 1: 0 = Digits only (0-9, *, # and +)
	1 = Alphabet set;
	bit 2: 0 = SMS default alphabet (GSM character set)
	1 = UCS2 alphabet
	bit 3: 0 = Character sets defined by bit 1 and bit 2 are enabled
	1 = Character sets defined by bit 1 and bit 2 are disabled and the "Yes/No" response is requested
	bits 4 to 7: RFU
	bit 8: 0 = No help information available
	1 = Help information available

	<text>: String as prompt for text.
	<iconQualifier>: Unsigned Integer, range 0 – 255, used as a bit field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 to 8: RFU
	<iconId>: 0-255, 0: No icon
Reference Siemens	Note

1.4.13 AT^SSTGI Remote-SAT Get Information – Get Input (35)

Write command
AT^SSTGI=35

This command is to be used upon receiving an unsolicited result code ^SSTN:35.

The TA is asked to prompt the user for an input, of a specified length and type, e.g. digits only. Help can be requested by the user, if available.

Text and an Icon Identifier can be passed to the TA to be displayed to the user.

Response

^SSTGI: <cmdType>, <commandDetails>, <text>, <responseMin>, <responseMax>, [<defaultText>], <iconQualifier>, <iconId> <CR> <LF>

Parameters

<cmdType>	35 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bit field.
	bit 1: 0 = Digits only (0-9, *, #, and +)
	1 = Alphabet set
	bit 2: 0 = SMS default alphabet (GSM character set)
	1 = UCS2 alphabet
	bit 3: 0 = ME may echo user input on the display
	1 = User input shall not be revealed in any way (see note)
	bit 4: 0 = User input to be in unpacked format
	1 = User input to be in SMS packed format
	bits 5 to 7: RFU
	bit 8: 0 = No help information available
	1 = Help information available
<text>	String as prompt for text
<responseMin>	Minimum length of user input (0 – 255)
<responseMax>	Maximum length of user input (0 – 255)
<defaultText>	String supplied as default response text
<iconQualifier>	Unsigned Integer, range 0 – 255, used as a bit field.
	bit 1: 0 = Icon is self explanatory and replaces text
	1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists).
	bits 2 to 8: RFU
<iconId>	0-255, 0: No icon

Reference
Siemens

Note

Hidden entry mode (see GSM 11.14) is only available when using digit input. In hidden entry mode only characters (‘0’-‘9’, ‘*’ and ‘#‘) are allowed.

1.4.14 AT^SSTGI Remote-SAT Get Information – Select Item (36)

Write command
AT^SSTGI=36

This command is to be used upon receiving an unsolicited result code ^SSTN:36.

The TA is supplied with a list of items allowing the user to select one. Help can be requested by the user, if available and the presentation style is specified.

In addition to text strings and icon identifiers, a next action indicator informs the user of the likely result of selecting a chosen item.

Response

The first line of output from the ME is:

^SSTGI: <cmdType>, <commandDetails>, <numOfItems>, <titleText>, <defaultItemId>, <itemIconsPresent>, <itemIconsQualifier>, <titleIconQualifier>, <titleIconId> <CR> <LF>

One line follows for every item, repeated for <numOfItems>:

^SSTGI: <cmdType>, <itemId>, <itemText>, <nextActionId>, <iconId> <CR><LF>

Parameters

<cmdType>	36 – Proactive command ID, see Table 1
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bitfield. bit 1: 0 = Presentation type is not specified 1 = Presentation type is specified in bit 2 bit 2: 0 = Presentation as a choice of data values if bit 1 = '1' 1 = Presentation as a choice of navigation options if bit 1 is '1' bit 3: 0 = No selection preference 1 = Selection using soft key preferred bits 4 to 7: = RFU bit 8: 0 = No help information available 1 = Help information available
<numOfItems>	Number of items in the list
<titleText>	String giving menu title
<defaultItemId>	ID of default item The SIM may supply with the list an indication of the default item, e.g. the previously selected item. 0 = No default item issued by the SIM application >1 = Any value greater than 0 shall be used as an id of the default item.
<itemIconsPresent>	0 = No icons 1 = Icons present
<itemIconsQualifier>	Unsigned Integer, range 0 – 255, used as a bit field. bit 1: 0 = Icons are self explanatory and replace text 1 = Icons are not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is

		not 0 (an icon exists).
		bits 2 to 8: = RFU
	<titleIconQualifier>	Unsigned Integer, range 0 – 255, used as a bit field.
		bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists).
		bits 2 to 8: = RFU
	<titleIconId>	0-255, 0: No icon
	<itemId>	Item identifier (1 – <numOfItems>)
	<itemText>	Title of item
	<nextActionId>	The next proactive command type to be issued upon execution of the menu item. See Table 1. 0: No Next Action information available.
	<iconId>	0-255, 0: No icon
Reference Siemens	Note	

1.4.15 AT^SSTGI Remote-SAT Get Information – Set up Menu (37)

Write command
AT^SSTGI=37

This command is mainly to be used upon receiving an unsolicited result code ^SSTN:37. However, please refer to note below.

The response provides the main menu of the SIM Application to the TA. It will be stored by the TA so that it can be displayed without invoking a proactive session.

Note:

As with every proactive command the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed.

Terminal response via AT^SSTR will not provide any user information in case of this proactive command. Refer to Chapter 1.5.3.1.

Response

The first line of output from the ME is:

^SSTGI: <cmdType>, <commandDetails>, <numOfItems>, <titleText>, <menuItemIconsPresent>, <menuItemIconsQualifier>, <titleIconQualifier>, <titleIconId> <CR> <LF>

One line follows for every menu item, repeated for <numOfItems>:

^SSTGI: <cmdType>, <itemId>, <itemText>, <nextActionId>, <iconId> <CR> <LF>

Parameters

<cmdType>	37 – Proactive command ID, see Table 1	
<commandDetails>	Unsigned Integer, range 0 – 255, used as a bit field.	
	bit 1:	0 = No selection preference
		1 = Selection using soft key preferred
	bits 2 to 7: = RFU	
	bit 8:	0 = No help information available
		1 = Help information available
<titleText>	String displaying menu title	
<menuItemIconsPresent>		0 = No icons
		1 = Icons present
<menuItemIconsQualifier>	Unsigned Integer, range 0 – 255, used as a bit field.	
	bit 1:	0 = Icons are self explanatory and replace text
		1 = Icons are not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists).
	bits 2 to 8: = RFU	
<titleIconQualifier>	Unsigned Integer, range 0 – 255, used as a bit field.	
	bit 1:	0 = Icon is self explanatory and replaces text
		1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists).

		bits 2 to 8: = RFU
	<titleIconId>	0-255, 0: no icon
	<numOfItems>	Number of menu items in the list
	<itemId>	Menu item identifier (1 – numOfItems)
	<itemText>	Title of menu item
	<nextActionId>	The next proactive command type to be issued upon execution of the menu item. See Table 1 0: No next action information available.
	<iconId>	0-255, 0: No icon
Reference Siemens	Note AT^SSTGI can be issued during states IDLE, PAC and WAIT for this proactive command without previously receiving a URC ^SSTN:<cmdType>, see Chapter 1.4.1.	

1.4.16 AT^SSTGI Remote-SAT Get Information – Set up Idle Mode Text (40)

Write command AT^SSTGI=40	This command is mainly to be used upon receiving an unsolicited result code ^SSTN:40. However, please refer to note below. It provides text and optionally an icon to be displayed by the TA when the display is Idle. Response ^SSTGI: <cmdType>, <commandDetails>, <text>, <iconQualifier>, <iconId> <CR> <LF>	
	Parameters	
	<cmdType>	40 – Proactive command ID, see Table 1
	<commandDetails>	This byte is RFU.
	<text>	String to display when TA in IDLE mode.
	<iconQualifier>	Unsigned Integer, range 0 – 255, used as a bit field. bit 1: 0 = Icon is self explanatory and replaces text 1 = Icon is not self-explanatory and shall be displayed with the text Determined value only if associated icon ID is not 0 (an icon exists). bits 2 to 8: = RFU
	<iconId>	0-255, 0: No icon
Reference Siemens	Note AT^SSTGI can be issued during states IDLE, PAC and WAIT for this proactive command without previously receiving a URC ^SSTN:<cmdType>, see Chapter 1.4.1.	

1.4.17 AT^SSTGI Remote-SAT Get Information – Get Icon Data (250)

Write command

AT^SSTGI=250 ,<iconId> [,<coloured> [,<minWidth> [,<minHeight> [,<maxWidth> [,<maxHeight>]]]]]

Write command AT^SSTGI=250, <iconId> requests data regarding an icon's bitmap from SIM. The bitmap is addressed via its icon identifier if reported to be available by a proactive command <iconId> parameter greater than 0. Therefore this command is not to be used upon receiving an unsolicited result code, see note below.

Raster image point colours are defined as references into a colour look-up table (CLUT), which contains a subset of the red-green-blue colour space. This coding scheme applies to black/white and coloured rectangular raster images.

A detailed description of the colour look-up table format can be found in GSM 11.11.

Each raster image point uses <BitsPerPoint> bits to reference one of the CLUT entries. The CLUT entry being thus referenced yields the raster image point's colour.

Response

^SSTGI: <cmdType>, <commandDetails>, <iconId>, <iconCount>, <clutEntries>, <BitsPerPoint>, <iconWidth>, <iconHeight>, <iconDataLength> <CR> <LF>

CLUT data are output with 200 data bytes per line, repeated for number of necessary lines. Calculated by ((<clutEntries>*3) + ((<clutEntries>*3)-1)) / 200.
^SSTGI: <cmdType>, <dataType>, <lineNumber>, <dataLen>,<clutData><CR> <LF>

Icon data are output with 200 data bytes per line, repeated for number of necessary lines. Calculated by (<iconDataLength>+199) / 200.
^SSTGI: <cmdType>, <dataType>, <lineNumber>, <dataLen>,<iconData><CR> <LF>

OK/ +CME ERROR

Write command parameters

Default values of optional parameters are underscored.

<iconId>	See response parameter section below
<coloured>	0: request black/white icon, 1: coloured icon
<minWidth>	Minimum width of requested icon, range is 2 – 255.
<minHeight>	Minimum height of requested icon, range is 2 – 255.
<maxWidth>	Maximum width of requested icon, range is 16 – 256.
<maxHeight>	Maximum height of requested icon, range is 16 – 256.

Response parameters

<cmdType>	250 – Command ID see Table 1.
<commandDetails>	This byte is RFU.
<iconId>	Unsigned Integer, range 0 – 255
0	Request number of icons on SIM only. Response parameters which follow <iconCount> are not listed.

1 - 255	Icon ID
<iconCount>	Displays the total number of icons stored on the SIM.
<clutEntries>	Unsigned Integer, range 1 – 256 Number of byte triplets in <clutData> which may be referenced from inside the image data array. <clutEntries> has a value between 1 and 2 ** <BitsPerPoint>.
<BitsPerPoint>	Unsigned Integer, range 1 – 8 Number of bits used to encode references into the colour look-up table, thus defining a raster image point's colour. Supported values are 1 and 2 bits per raster image point. 1 bit per raster point applies to a black/white image with <clutData> equals “000000FFFFFF”.
<iconWidth>	Icon width, displays number of raster points.
<iconHeight>	Icon height, displays number of raster points.
<iconDataLength>	Number of icon data bytes
<dataType>	Unsigned Integer, range 0-255
0	CLUT data line tag
1	Icon data line tag
2-255	RFU
<lineNumber>	Data line counter
<dataLen>	Number of data bytes following on this line, maximal 200.
<clutData>	Binary coded data stream containing one RGB byte triplet for every colour. The CLUT entries are arranged sequentially. Each CLUT entry in turn comprises 3 bytes defining one colour in the red-green-blue colour space. A value of 'FF' means maximum intensity, e.g. the definition 'FF' '00' 00' stands for fully saturated red. So <clutData> containing “000000FFFFFF” codes a CLUT for black (all colours off) and white (all colours on).
<iconData>	Binary coded data stream containing the icon data, starting with the highest bit of the first raster point´s colour information. Unused bits of the last byte are filled with ´1´, if any. Maximal supported number of coded data bytes is 1024.

1.5 AT^SSTR Remote-SAT Response – Generic Format

Test command AT^SSTR=?	Response ^SSTR:(list of supported <state>s), (list of supported <cmdType>s) OK
Read command AT^SSTR?	Response ^SSTR: <state>, <cmdType> OK Parameters <state> Remote-SAT interface states (refer to AT^SSTA) <cmdType> Ongoing proactive command (values see chapter 1.1.5). However, this information is valid during states PAC and WAIT only.
Write command AT^SSTR=<cmdType>,<status>[,<itemId>][,<inputString>]	The TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. AT^SSTR will also provide any user information e.g. selected menu item. Response During execution of a proactive command after AT^SSTR a response parameter line may be issued by the ME: ^SSTR: <pac>, <TermQualifier>, <TerminationCauseText> <TerminationQualifier> Unsigned Integer, range 0 – 255 0 If <TerminationQualifier> is equal to 0, the proactive command has been successfully finished. >0 If <TerminationQualifier> is not equal to 0 the proactive command did not perform successfully. <TerminationCauseText> • If <TermQualifier> is not equal to 0 the proactive command did not perform successfully: If <TerminationCauseText> is not an empty string, this text has to be shown to the user for an appropriate time, e.g. 2 seconds. The text contains information regarding the termination cause, e.g. in case of a failed dialing process call barring through Call Control by SIM mechanism may be indicated. If <TerminationCauseText> is an empty string, the TA shall give an own indication to the user. • If <TermQualifier> is equal to 0, the proactive command has been successfully finished: If <TerminationCauseText> is not an empty string, this text shall be shown to the user for an appropriate time. OK

	Parameters <cmdType> Number related to proactive command or event type, see Table 1.1.5 <status> Command status return regarding the type of action that has taken place, e.g. action performed by the user, possible values see the table in Chapter 1.5.1 [<itemId>] ID of menu item selected by user [<inputString>] String response entered by user
Reference Siemens	Note If no optional parameter is issued, no trailing commas are allowed to be returned.

1.5.1 Remote-SAT Command Status

The following status values give a response to a previously issued Proactive command, and are used by the AT Command AT^SSTR. The status parameter is used to identify the type of response from the TA to the ME.
Table based upon GSM 11.14.

Status value	Terminal response	REFRESH **1**	SETUP EVENT LIST **5**	SET UP CALL **16**	SEND SS **17**	SEND USSD **18**	SEND SMS **19**	SEND DTMF **20**	LAUNCH BROWSER **21**	PLAY TONE **32**	DISPLAY TEXT **33**	GET INKEY **34**	GET INPUT **35**	SELECT ITEM **36**	SET UP MENU **37**	SETUP IDLE MODE TEXT **40**
00	Command performed successfully	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	Proactive SIM session terminated by user			•				•		•	•	•	•	•		
17	Backward move in the proactive SIM session requested by the user										•	•	•	•		
18	No response from user										•	•	•	•		
19	Help information required by the user											•	•	•		
20	USSD/SS Transact terminated by user			•	•	•										
32	ME currently unable to process command	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
132	ME currently unable to process command - screen is busy	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
34	User did not accept the proactive command			•					•							
35	User cleared down call before connection or network release			•												

1.5.2 Proactive Commands

1.5.2.1 AT^SSTR Remote-SAT Response – Refresh (1)

Write command AT^SSTR=1, <status>	If <cmdDetail> reported by AT^SSTGI was 4, the ME is performing a SIM reset. Therefore a terminal response should not be issued. Response OK Parameters <cmdType> 1 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.2 AT^SSTR Remote-SAT Response – Set Up Event List (5)

Write command AT^SSTR=5, <status>	The TA is acknowledging that the event list has been set up correctly. Response OK Parameters <cmdType> 5 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.3 AT^SSTR Remote-SAT Response – Setup Call (16)

Write command AT^SSTR=16, <status>	The TA indicates if the call setup has been accepted by the user. For further details please refer to Chapter 1.4.4 Response After confirmation phase the TA may show a dialling animation on the screen until a mandatory response parameter is issued. ^SSTR: <pac>, <TermQualifier>, <TerminationCauseText> For a detailed explanation of these parameters please refer to Chapter 1.4.4. OK Parameters <cmdType> 16 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully Indicate that the user has accepted the call request. 16 Proactive SIM session terminated by user 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. 34 User did not accept the proactive command. Indicate that the user has denied the call request. 35 User cleared down call before connection or network release
Reference Siemens	Note

1.5.2.4 AT^SSTR Remote-SAT Response – Send SS (17)

Write command AT^SSTR=17, <status>	The TA indicates if the Send SS command has been cancelled by the user. Response OK Parameters <cmdType> 17– Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note Used to provide information to the ME, upon receiving a ^SSTGI response.

1.5.2.5 AT^SSTR Remote-SAT Response – Send USSD (18)

Write command AT^SSTR=18, <status>	The TA indicates if the “Send USSD” command has been cancelled by the user. Response OK Parameters <cmdType> 18 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 20 USSD/SS Transact terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. Notes: Used only for confirmation of customer application status
Reference Siemens	Note

1.5.2.6 AT^SSTR Remote-SAT Response – Send Short Message (19)

Write command AT^SSTR=19, <status>	The TA acknowledges the successful receipt of the proactive command. Response OK Parameters <cmdType> 19 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.7 AT^SSTR Remote-SAT Response – Send DTMF (20)

Write command AT^SSTR=20, <status>	The TA acknowledges the successful receipt of the proactive command. Response OK Parameters <cmdType> 20 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 00 Command performed successfully 16 Proactive SIM session terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.8 AT^SSTR Remote-SAT Response – Launch Browser (21)

Write command AT^SSTR=21, <status>	The TA acknowledges the successful receipt of the proactive command. Response OK Parameters <cmdType> 21 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 00 Command performed successfully 32 TA currently unable to process command 34 User did not accept the proactive command. It indicates that the launch browser request was denied by the user. 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.9 AT^SSTR Remote-SAT Response – Play Tone (32)

Write command AT^SSTR=32, <status>	The TA acknowledges the successful receipt of the proactive command. Response OK Parameters <cmdType> 32 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.10 AT^SSTR Remote-SAT Response – Display Text (33)

Write command AT^SSTR=33, <status>	The TA can respond with a move through proactive session, or provide additional information. Response OK Parameters <cmdType> 33 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note Used to provide information to the ME, upon receiving a ^SSTGI response.

1.5.2.11 AT^SSTR Remote-SAT Response – Get Inkey (34)

Write command

AT^SSTR=34, <status>, , <inputString>

The TA provides a response that can indicate the user's intentions, and include the input key.

Response

OK

Parameters

<cmdType> 34 – Proactive command ID, see Table 1

<status> Unsigned Integer, range 0-255

0	Command performed successfully
16	Proactive SIM session terminated by user
17	Backward move in the proactive SIM session requested by the user
18	No response from user
19	Help information required by the user
32	TA currently unable to process command
132	TA currently unable to process command because screen is busy.

<inputString> User response entered as a string parameter.

Coding of any input character is related to the selected alphabet:

- Input of a character in case of GSM character set requests one byte, e.g. “Y”.
- Input of any characters in UCS2 alphabet requests a 4 byte set, e.g. “0059” is coding the same character “Y”.
- If, as a user response, a binary choice (Yes/No) is requested by the SIM application using bit 3 of the <commandDetails> parameter the valid content of the <inputString> is:
  a) GSM alphabet: “Y” or “y” (positive answer) and “N” or “n” (negative answer)
  b) UCS2 alphabet “0079” or “0059” (positive answer) and “006E” or “004E” (negative answer) For more detailed information refer to Chapter 1.4.12
- Coding of an empty string is done as a “\1b” string with every alphabet.

Reference

Siemens

Note

The alphabet - and therefore the set of allowed characters - is specified by the ME in the response to the related AT^SSTGI. However, do not mix up this alphabet with the one selected for the alphabet format on the transmission line on SAT activation, i.e. second parameter of AT^SSTA).

1.5.2.12 AT^SSTR Remote-SAT Response – Get Input (35)

Write command

AT^SSTR=35, <status>, , <inputString>

The TA sends a response that can indicate the user's intentions and include the input string.

Response

OK

Parameters

<cmdType> 35 – Proactive command ID, see Table 1

<status> Unsigned Integer, range 0-255

0	Command performed successfully
16	Proactive SIM session terminated by user
17	Backward move in the proactive SIM session requested by the user
18	No response from user
19	Help information required by the user
32	TA currently unable to process command
132	TA currently unable to process command because screen is busy.

<inputString> User response entered as a string, length depends on values of <responseMin> and <responseMax> returned by the related AT^SSTGI command.

Coding of any input character is related to the selected alphabet:

- Input of a character in case of ANSI character set requests one byte, e.g. “Y”.
- Input of a characters in UCS2 alphabet requests a 4 byte string, e.g. “0059” is coding the same character “Y”.
- Coding of an empty string is done as “\1b” in every alphabet.

Reference

Siemens

Note

The alphabet - and therefore the set of allowed characters - is specified by the ME in the response to the related AT^SSTGI. However, do not mix up this alphabet with the one selected for the alphabet format on the transmission line on SAT activation, i.e. second parameter of AT^SSTA.

1.5.2.13 AT^SSTR Remote-SAT Response – Select Item (36)

Write command AT^SSTR=36, <status>, <itemId>	The TA sends a response that can indicate the user's intentions, e.g. when the user is requesting help or selecting a menu item. Response OK Parameters <cmdType> 36 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully 16 Proactive SIM session terminated by user 17 Backward move in the proactive SIM session requested by the user 18 No response from user 19 Help information required by the user 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy. <itemId> ID of selected item (1-255), can be issued if a <status> value of 0 is returned. Item IDs are supplied by the SIM Application
Reference Siemens	Note

1.5.2.14 AT^SSTR Remote-SAT Response – Set Up Menu (37)

Write command AT^SSTR=37, <status>	Note: As with every proactive command the TA is expected to acknowledge the ^SSTGI response with AT^SSTR to confirm that the proactive command has been executed. The response simply conveys, to the SAT, the information that the main menu was received and set up on the user interface. It does not transmit any information about a selected item, like in the case of AT^SSTR=36. Once this command was executed the user can proceed as described in the Chapter 1.5.3.1. Response OK Parameters <cmdType> 37 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully (proactive session will end). 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.2.15 AT^SSTR Remote-SAT Response – Set Up Idle Mode Text (40)

Write command AT^SSTR=40, <status>	The TA indicates whether the set up Idle mode text command was correctly executed. Response OK Parameters <cmdType> 40 – Proactive command ID, see Table 1. <status> Unsigned Integer, range 0-255 0 Command performed successfully 32 TA currently unable to process command 132 TA currently unable to process command because screen is busy.
Reference Siemens	Note

1.5.3 Event response commands

The following types of responses are neither issued in reaction to a formerly given notification (^SSTN) nor an AT^SSTGI sequence. These responses are intended to report activities at the external application, e.g. when the user is pressing a key.

1.5.3.1 AT^SSTR Remote-SAT Event Response – Menu Selection (211)

Write command AT^SSTR=211, <status>, < itemId >	The TA specifies the user's selection of an item from the main menu, which was set up using SETUP MENU command. Alternatively help can be requested. Response OK Parameters <cmdType> 211 – Proactive command ID, see Table 1 <status> Unsigned Integer, range 0-255 0 Command performed successfully. 19 Help information required by the user, no other value can be returned. <itemId> ID of selected item (1-255)
Reference Siemens	Note

1.5.3.2 AT^SSTR Remote-SAT Event Response – User Activity (232)

Write command AT^SSTR=232	Sent by the customer application to indicate that a key has been pressed. Response OK Parameters <cmdType> 232 – Event command ID, see Table 1
Reference Siemens	Note

1.5.3.3 AT^SSTR Remote-SAT Event Response – Idle Screen Available (233)

Write command AT^SSTR=233	Sent by the customer application to indicate that the screen has become idle. Response OK Parameters <cmdType> 233 – Event command ID, see Table 1.
Reference Siemens	Note

1.5.3.4 AT^SSTR Remote-SAT Event Response – Language Selection (235)

Write command AT^SSTR=235, , , <inputString>	Sent by the customer application to indicate that the customer application has changed language. Response OK Parameters <cmdType> 235 – Event command ID, see Table 1 <inputString> Two character language tag, e.g. “en” for English or “de” for German, refer to Chapter 2.3
Reference Siemens	Note

1.5.3.5 AT^SSTR Remote-SAT Event Response – Browser Termination (236)

Write command AT^SSTR=236, , <TermCause>	Sent by the customer application to indicate that the internet browser application has been terminated. Response OK Parameters <cmdType> 236 – Event command ID, see Table 1. <TermCause> Unsigned Integer, range 0-255 Browser Termination Cause 0 User termination. 1 Error termination.
Reference Siemens	Note

1.5.3.6 AT^SSTR Remote-SAT Event Response – Terminate Command (254)

Write command AT^SSTR=254	This command allows the TA to finish an ongoing proactive command. This is done by sending repeatedly a terminal response “ME currently unable to process command - screen is busy” to the SIM (see Table 1”), if issued in states PAC or WAIT. No action is performed if the interface is already in IDLE state. However, the command returns “OK”. The reaction to the terminal response depends on the SIM application. The command can be used to return to IDLE state regardless whether a proactive command is ongoing or not. Response OK Parameters <cmdType> 254 – Event command ID, see Table 1
Reference Siemens	Note This command is allowed in states IDLE, PAC and WAIT and forces a return to IDLE state once it has been issued successfully, i.e. OK response.

2 Appendix

2.1 Appendix A – SAT Profile

SAT Profile download is used as a means of the ME telling the SIM what it is capable of. The profile download instruction is sent to the SIM from the ME as part of the SIM initialisation process. The profile sent by the ME states which facilities the ME will support.

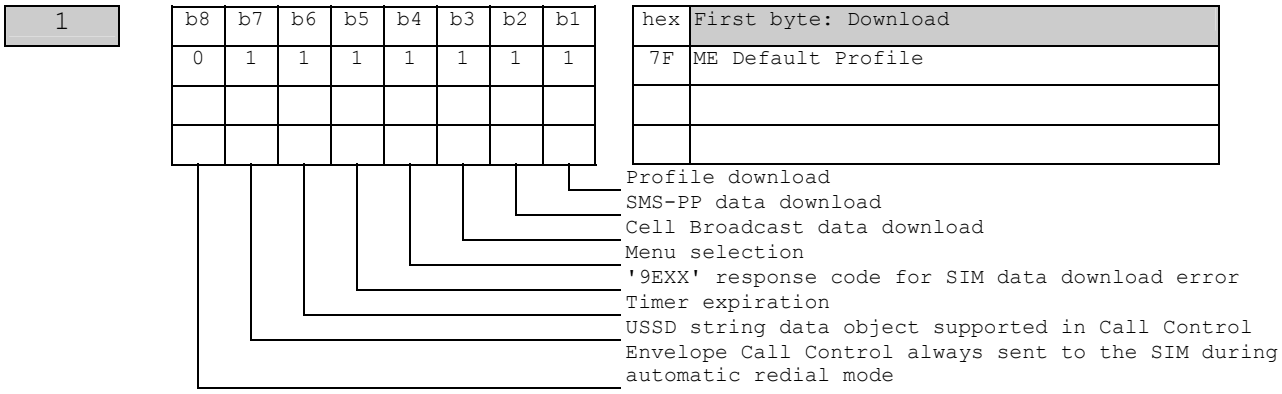
The SIM adapts its behaviour to the capabilities of the ME by reducing its instruction range.

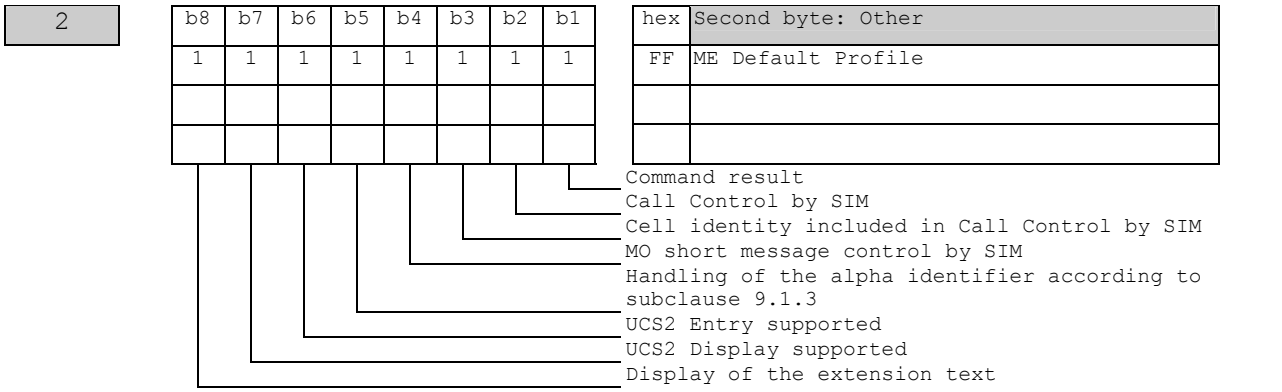
The AT command AT^SSTA is used to read the profile, please refer to chapter 1.2.

For further information please refer to GSM 11.14 section 5.2.

Profile:
Contents: The list of SIM Application Toolkit facilities that are supported by the ME.

Coding:
1 bit is used to code each facility:
bit = 1: facility supported by ME
bit = 0: facility not supported by ME


1
b8 b7 b6 b5 b4 b3 b2 b1
0 1 1 1 1 1 1 1
hex First byte: Download
7F ME Default Profile
Profile download
SMS-PP data download
Cell Broadcast data download
Menu selection
'9EXX' response code for SIM data download error
Timer expiration
USSD string data object supported in Call Control
Envelope Call Control always sent to the SIM during automatic redial mode


2
b8 b7 b6 b5 b4 b3 b2 b1
1 1 1 1 1 1 1 1
hex Second byte: Other
FF ME Default Profile
Command result
Call Control by SIM
Cell identity included in Call Control by SIM
MO short message control by SIM
Handling of the alpha identifier according to subclause 9.1.3
UCS2 Entry supported
UCS2 Display supported
Display of the extension text

3

b8	b7	b6	b5	b4	b3	b2	b1
1	1	1	1	1	1	1	1

hex	Third byte: Proactive SIM
FF	ME Default Profile

Proactive SIM: DISPLAY TEXT
Proactive SIM: GET INKEY
Proactive SIM: GET INPUT
Proactive SIM: MORE TIME
Proactive SIM: PLAY TONE
Proactive SIM: POLL INTERVAL
Proactive SIM: POLLING OFF
Proactive SIM: REFRESH

4

b8	b7	b6	b5	b4	b3	b2	b1
1	1	1	1	1	1	1	1

hex	Fourth byte: Proactive SIM
FF	ME Default Profile

Proactive SIM: SELECT ITEM
Proactive SIM: SEND SHORT MESSAGE
Proactive SIM: SEND SS
Proactive SIM: SEND USSD
Proactive SIM: SET UP CALL
Proactive SIM: SET UP MENU
Proactive SIM: PROVIDE LOCAL INFORMATION (MCC, MNC, LAC, Cell ID & IMEI)
Proactive SIM: PROVIDE LOCAL INFORMATION (NMR)

5

b8	b7	b6	b5	b4	b3	b2	b1
0	1	1	1	1	1	1	1

hex	Fifth byte: Event driven information
7F	ME Default Profile

Proactive SIM: SET UP EVENT LIST
Event: MT call
Event: Call connected
Event: Call disconnected
Event: Location status
Event: User activity
Event: Idle screen available
Event: Card reader status

6

b8	b7	b6	b5	b4	b3	b2	b1
0	0	0	0	0	0	1	1

hex	Sixth byte: Event driven information extensions
01	ME Default Profile

Event: Language selection
Event: Browser Termination
Event: Data available
Event: Channel status
RFU, bit = 0
RFU, bit = 0
RFU, bit = 0
RFU, bit = 0

7

b8	b7	b6	b5	b4	b3	b2	b1
0	0	0	0	0	0	0	0

hex	Seventh byte: Multiple card proactive commands for class "a"
00	ME Default Profile

Proactive SIM: POWER ON CARD
Proactive SIM: POWER OFF CARD
Proactive SIM: PERFORM CARD APDU
Proactive SIM: GET READER STATUS (Card reader status)
Proactive SIM: GET READER STATUS (Card reader identifier)
RFU, bit = 0

8

b8	b7	b6	b5	b4	b3	b2	b1
1	1	0	1	1	1	1	1

hex	Eighth byte: Proactive SIM
DF	ME Default Profile

Proactive SIM: TIMER MANAGEMENT (start, stop)
Proactive SIM: TIMER MANAGEMENT (get current value)
Proactive SIM: PROVIDE LOCAL INFORMATION (date, time and time zone)
Binary choice in GET INKEY
SET UP IDLE MODE TEXT
RUN AT COMMAND (i.e. class "b" is supported)
2nd alpha identifier in SET UP CALL
2nd capability configuration parameter (see 9.1.6)

9

b8	b7	b6	b5	b4	b3	b2	b1
0	1	0	1	1	1	1	1

hex	Ninth byte
5F	ME Default Profile

Sustained DISPLAY TEXT
SEND DTMF command
Proactive SIM: PROVIDE LOCAL INFORMATION
Proactive SIM: PROVIDE LOCAL INFORMATION (language)
Proactive SIM: PROVIDE LOCAL INFORMATION (Timing Advance)
Proactive SIM: LANGUAGE NOTIFICATION
Proactive SIM: LAUNCH BROWSER
RFU, bit = 0

2.2 Appendix B - UCS2 Character Set Options

UCS Character Set Rows	
Value	**Language**
A-ZONE (alphabetical characters and symbols)	
00	(Control characters,) Basic Latin, Latin-1 Supplement (=ISO/IEC 8859-1)
01	Latin Extended-A, Latin Extended-B
02	Latin Extended-B, IPA Extensions, Spacing Modifier Letters
03	Combining Diacritical Marks, Basic Greek, Greek Symbols and Coptic
04	Cyrillic
05	Armenian, Hebrew
06	Basic Arabic, Arabic Extended
07--08	(Reserved for future standardization)
09	Devanagari, Bengali
0A	Gumukhi, Gujarati
0B	Oriya, Tamil
0C	Telugu, Kannada
0D	Malayalam
0E	Thai, Lao
0F	(Reserved for future standardization)
10	Georgian
11	Hangul Jamo
12--1D	(Reserved for future standardization)
1E	Latin Extended Additional
1F	Greek Extended
20	General Punctuation, Super/subscripts, Currency, Combining Symbols
21	Letterlike Symbols, Number Forms, Arrows
22	Mathematical Operators
23	Miscellaneous Technical Symbols
24	Control Pictures, OCR, Enclosed Alphanumerics

25	Box Drawing, Block Elements, Geometric Shapes
26	Miscellaneous Symbols
27	Dingbats
28--2F	(Reserved for future standardization)
30	CJK Symbols and Punctuation, Hiragana, Katakana
31	Bopomofo, Hangul Compatibility Jamo, CJK Miscellaneous
32	Enclosed CJK Letters and Months
33	CJK Compatibility
34--4D	Hangul
I-ZONE (ideographic characters)	
4E--9F	CJK Unified Ideographs
O-ZONE (open zone)	
A0--DF	(Reserved for future standardization)
R-ZONE (restricted use zone)	
E0--F8	(Private Use Area)
F9--FA	CJK Compatibility Ideographs
FB	Alphabetic Presentation Forms, Arabic Presentation Forms-A
FC--FD	Arabic Presentation Forms-A
FE	Combining Half Marks, CJK Compatibility Forms, Small Forms, Arabic-B
FF	Halfwidth and Fullwidth Forms, Specials

2.3 Appendix C – Language Codes

Language	ISO Code	Win Code	Mac Name	Mac Code
Abkhazian	ab			
Afar	aa			
Afrikaans	af	0x0036		
Albanian	sq	0x001c	langAlbanian	36
Amharic	am		langAmharic	85
Arabic	ar	0x0001	langArabic	12
Armenian	hy		langArmenian	51
Assamese	as		langAssamese	68
Aymara	ay		langAymara	134
Azerbaijani	az		langAzerbaijani(Latin), langAzerbaijanAr(Arabic)	49(L), 50(A)
Bashkir	ba			
Basque	eu	0x002d	langBasque	129
Bengali (Bangla)	bn		langBengali	67
Bhutani	dz		langDzongkha	137
Bihari	bh			
Bislama	bi			
Breton	br		langBreton	142
Bulgarian	bg	0x0002	langBulgarian	44
Burmese	my		langBurmese	77
Byelorussian	be	0x0023	langByelorussian	46
Cambodian	km		langKhmer	78
Catalan	ca	0x0003	langCatalan	130
Chewa			langChewa	92
Chinese	zh	0x0004	langTradChinese, langSimpChinese	19(T), 33(S)
Corsican	co			
Croatian	hr	0x001a	langCroatian	18
Czech	cs	0x0005	langCzech	38
Danish	da	0x0006	langDanish	7
Dutch	nl	0x0013	langDutch	4
English	en	0x0009	langEnglish	0
Esperanto	eo		langEsperanto	94
Estonian	et	0x0025	langEstonian	27
Faeroese	fo	0x0038	langFaeroese	30
Farsi	fa	0x0029	langFarsi, langPersian	31
Fiji	fj			
Finnish	fi	0x000b	langFinnish	13
Flemish			langFlemish	34
French	fr	0x000c	langFrench	1
Frisian	fy			
Galician	gl			
Galla			langGalla	87
Georgian	ka		langGeorgian	52
German	de	0x0007	langGerman	2
Greek	el	0x0008	langGreek	14
Greenlandic	kl			
Guarani	gn		langGuarani	133
Gujarati	gu		langGujarati	69
Hausa	ha			
Hebrew	iw, he	0x000d	langHebrew	10
Hindi	hi	0x0039	langHindi	21
Hungarian	hu	0x000e	langHungarian	26

Language	ISO Code	Win Code	Mac Name	Mac Code
Icelandic	is	0x000f	langIcelandic	15
Indonesian	in, id	0x0021	langIndonesian	81
Interlingua	ia			
Interlingue	ie			
Inuktitut	iu		langInuktitut	143
Inupiak	ik			
Irish	ga		langIrish	35
Italian	it	0x0010	langItalian	3
Japanese	ja	0x0011	langJapanese	11
Javanese	jw		langJavaneseRom	138
Kannada	kn		langKannada	73
Kashmiri	ks		langKashmiri	61
Kazakh	kk		langKazakh	48
Kinyarwanda	rw			
Kirghiz	ky		langKirghiz	54
Kirundi	rn			
Korean	ko	0x0012	langKorean	23
Kurdish	ku		langKurdish	60
Laothian	lo		langLao	79
Lappish			langLappish, langSaamisk	29
Latin	la		langLatin	131
Latvian (Lettish)	lv	0x0026	langLatvian	28
Lingala	ln			
Lithuanian	lt	0x0027	langLithuanian	24
Macedonian	mk	0x002f	langMacedonian	43
Malagasy	mg		langMalagasy	93
Malay	ms	0x003e	langMalayRoman(Latin), langMalayArabic(Arabic)	83(L), 84(A)
Malayalam	ml		langMalayalam	72
Maltese	mt		langMaltese	16
Manx Gaelic	gv*		langGailck	141
Maori	mi			
Marathi	mr		langMarathi	66
Moldavian	mo		langMoldavian	53
Mongolian	mn		langMongolian(Mongolian), langMongolianCyr(Cyrillic)	57(M), 58(C)
Nauru	na			
Nepali	ne		langNepali	64
Norwegian	no	0x0014	langNorwegian	9
Occitan	oc			
Oriya	or		langOriya	71
Oromo (Afan)	om		langOromo	87
Pashto (Pushto)	ps		langPashto	59
Polish	pl	0x0015	langPolish	25
Portuguese	pt	0x0016	langPortuguese	8
Punjabi	pa		langPunjabi	70
Quechua	qu		langQuechua	132
Rhaeto-Romance	rm			
Romanian	ro	0x0018	langRomanian	37
Ruanda			langRuanda	90
Rundi			langRundi	91
Russian	ru	0x0019	langRussian	32
Samoan	sm			
Sangro	sg			

Language	ISO Code	Win Code	Mac Name	Mac Code
Sanskrit	sa		langSanskrit	65
Scots Gaelic	gd		langGaidhlig	140
Serbian	sr	0x001a	langSerbian	42
Serbo-Croatian	sh			
Sesotho	st			
Setswana	tn			
Shona	sn			
Sindhi	sd		langSindhi	62
Singhalese	si		langSinhalese	76
Siswati	ss			
Slovak	sk	0x001b	langSlovak	39
Slovenian	sl	0x0024	langSlovenian	40
Somali	so		langSomali	88
Spanish	es	0x000a	langSpanish	6
Sundanese	su		langSundaneseRom	139
Swahili	sw	0x0041	langSwahili	89
Swedish	sv	0x001d	langSwedish	5
Tagalog	tl		langTagalog	82
Tajik	tg		langTajiki	55
Tamil	ta		langTamil	74
Tatar	tt		langTatar	135
Telugu	te		langTelugu	75
Thai	th	0x001e	langThai	22
Tibetan	bo		langTibetan	63
Tigrinya	ti		langTigrinya	86
Tonga	to			
Tsonga	ts			
Turkish	tr	0x001f	langTurkish	17
Turkmen	tk		langTurkmen	56
Twi	tw			
Uighur	ug		langUighur	136
Ukrainian	uk	0x0022	langUkrainian	45
Urdu	ur	0x0020	langUrdu	20
Uzbek	uz		langUzbek	47
Vietnamese	vi	0x002a	langVietnamese	80
Volapük	vo			
Welsh	cy		langWelsh	128
Wolof	wo			
Xhosa	xh			
Yiddish	ji, yi		langYiddish	41
Yoruba	yo			
Zulu	zu			